

PATENT ABSTRACTS OF JAPAN

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(54) COVER TAPE FOR PACKAGING ELECTRONIC PARTS

(57)Abstract:

PURPOSE: To easily obtain a necessary peeling-off strength, by using a sealant made of a mixture of polyethylene or polypropylene with a hydrogenated styrene- isoprene-styrene block copolymer.

CONSTITUTION: A cover tape 1 for packaging electronic parts has 5-30 microns in the thickness of a biaxially orientated film 2 as an external layer and a sealant 4 has 5-30 microns in the thickness. The sealant 4 is constituted of a mixture of 10-1000 pts.wt. of hydrogenated styrene-isoprene-styrene block copolymer having 6-250g/10min. in the melt flow rate and 100 pts.wt. of polyethylene or polypropylene having 10-50g/10min. in the melt flow rate. And the adhesive force of the sealant 4 of a cover tape 1 and the seal face 5 of a carrier tape 6 is 10-120g per 1mm of the seal width and the transmissivity of visible light of the cover tape 1 is 80% or larger. In this way, a sable peeling-off strength can be obtained.



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- 3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application]This invention protects electronic parts from contamination, on the occasion of storage of electronic parts, transportation, and wearing, since it mounts in an electronic circuit board, it is aligned, and it relates to the cover tape by which a heat seal may be carried out to the carrier tape made from a plastic which formed the receiving pocket among the packed bodies which have a function which can be taken out.

[0002]

[Description of the Prior Art]Electronic parts for surface mounts, such as transistors including IC, a diode, a capacitor, and a piezoelectric element register, in recent years, According to the shape of electronic parts, it is packed by the packed body which consists of a cover tape which can carry out the heat seal of the pocket which can be stored, and by which embossing shaping was carried out to the carrier tape made from a plastic formed continuously, and a carrier tape, and it is supplied. After the electronic parts of contents exfoliate the cover tape of a packed body, they are taken out automatically and the surface mount is carried out to the electronic circuit board. Although the intensity at the time of a cover tape exfoliating from a carrier tape was called peel-off intensity, when this intensity was too low, at the time of a packed body transfer, the cover tape separated and there was a problem that the electronic parts which are contents were omitted. On the contrary, when too strong, the phenomenon which jumps out of a receiving pocket just before a carrier tape vibrates and being equipped with electronic parts, when exfoliating a cover tape, i.e., a jumping trouble, was caused. The sample by which the seal of the cover tape was carried out to the cover tape or the carrier tape (henceforth) a taping sample -- calling -- when it was kept the bottom of an elevated temperature, or under highly humid for a long period of time, and what is called blocking to which volume **** of a cover tape becomes difficult arose or a taping sample was exfoliated,

there was a case where peel-off intensity became strong from storage before, or it became weak. There were many cover tapes sensitive to the temperature conditions at the time of peel-off intensity taping, and required peel-off intensity was not able to be obtained easily.

[0003]

[Problem(s) to be Solved by the Invention] That this invention should solve the above problems The seal temperature dependence of peel-off intensity, As a result of aging is small, obtaining the sealing nature stable cover tape and inquiring wholeheartedly, via the biaxially oriented film and anchor coat agent layer which are polyester, polypropylene, or nylon as an outer layer, Knowledge that the cover tape in which sealant becomes polyethylene or polypropylene from a mixture with hydrogenation styrene isoprene styrene block copolymer has the good characteristic is acquired, and it comes to complete this invention.

[0004]

[Means for Solving the Problem] This invention is a pocket which stores electronic parts a cover tape which can carry out a heat seal to a carrier tape made from a plastic formed continuously, and this cover tape, An outer layer is a biaxially oriented film which is polyester, polypropylene, or nylon, and sealant, It is a cover tape for an electronic-parts package changing from a mixture with hydrogenation styrene isoprene styrene block copolymer to polyethylene or polypropylene. Thickness of a biaxially oriented film whose desirable mode of this invention is an outer layer is 5-30micro, As opposed to polyethylene or polypropylene 100 weight section whose melt flow rates thickness of sealant is 5-30micro, and are 10-50g/10 minutes, Hydrogenation styrene isoprene styrene block copolymer whose melt flow rates are 6-250g/10 minutes comprises a mixture which is ten to 1000 weight section, It is a cover tape for an electronic-parts package, wherein adhesive strength of sealant of this cover tape and a sealing surface of this carrier tape is 10 per seal width of 1 mm - 120gr and visible light transmissivity of this cover tape is not less than 80%.

[0005]

[Function] When drawing 1 explains the component of the cover tape 1 of this invention, the outer layer 2 is a biaxially oriented film which is polyester, polypropylene, or nylon, and it is a rigid high film in the transparence whose thickness is 5-30micro. The thickness of rigidity is lost at 5micro or less, and a cover tape goes out easily. If 30 micro is exceeded, a seal will become it is too hard and unstable. As opposed to polyethylene or polypropylene 100 weight section whose melt flow rates of the sealant 5 are 10-50g/10 minutes, The hydrogenation styrene isoprene styrene block copolymer whose melt flow rates are 6-250g/10 minutes thin-film-izes the resin composition which comprises the mixture which is ten to 1000 weight section to 5-30micro. About the formation method of the above double layer film, extrusion laminating method is cheap, and it sees from a sanitary aspect and is the most desirable.

[0006] When the melt flow rate of polyethylene or polypropylene is [the melt flow rates of

50g/10 minutes or more, or hydrogenation styrene isoprene styrene block copolymer] 250g/10 minutes or more, necking cannot produce a film violently in the case of an extrusion lamination. When the melt flow rate of polyethylene or polypropylene is [the melt flow rates of 10g/less than 10 minutes, or hydrogenation styrene isoprene styrene block copolymer] 6g/less than 10 minutes, In the case of an extrusion lamination, the product the thickness in the rolling-up direction of a film becomes less constant [the product], and was stable is not obtained. Peel-off intensity is not obtained by being stabilized that it is it easy to be influenced that sealant thickness is less than 5micro by the shape of a carrier tape at the time of the exfoliation from a carrier tape. After film production, it is easy to be cooled and adhesion with an outer layer worsens. When 20 micro is exceeded, an elevated temperature is needed for thermal conductivity getting worse and obtaining suitable peel-off intensity at the time of heat sealing.

[0007]When it uses at a film that hydrogenation styrene isoprene styrene block copolymer is 1000 or more weight sections to polyethylene or polypropylene 100 weight section, blocking begins to wind violently and is impossible. Suitable peel-off intensity is not obtained with their being ten or less weight sections. Both may be further laminated via a low density polyethylene layer in the heat-hardened type anchor coat layer of an isocyanate system, an imine system, etc. for the purpose of raising the laminate strength of an outer layer and sealant. As a low density polyethylene layer, density is 0.91-0.92 g/cm², and that whose thickness is 5-50micro is suitable. When thickness carries out a seal to a carrier tape in 5micro or less, since there is little elasticity of a cover tape, it is influenced by the shape of a carrier tape, and peel-off intensity becomes unstable. After film production, it is easy to be cooled and adhesion with sealant worsens. If 50 micro is exceeded, heat will become difficult to be transmitted to sealant and required peel-off intensity will no longer be obtained.

[0008]In order to establish an electrostatic effect, an antistatic treatment layer or a conductive layer may be provided in an outer layer side, i.e., the surface and rear surface of a biaxially oriented polyester film. In this case, resin of sealant is formed so that the adhesive strength of this cover tape 1 and this carrier tape 6 may become ten to 70 gr still more preferably ten to 120 gr per seal width of 1 mm. When peel-off intensity is lower than 10gr, at the time of a packed body transfer, a cover tape separates and there is a problem that the electronic parts which are contents are omitted. On the contrary, if higher than 120gr, the phenomenon which a carrier tape vibrates when exfoliating a cover tape, and jumps out of a receiving pocket just before electronic-parts wearing is carried out, i.e., a jumping trouble, will be caused. According to this invention, the dependency of seal conditions is low, and the performance which aging of the peel-off intensity by storage environment makes few purposes can be obtained.

[0009]Since it is constituted so that the visible light transmissivity of a cover tape may be not less than 85% preferably not less than 80%, the electronic parts of the inside enclosed with the

carrier tape can check with viewing or machinery. When lower than 10%, the check of inner electronic parts is difficult. If the hydrogenation styrene butadiene styrene block copolymer shown by JP,2-214656,A instead of hydrogenation styrene isoprene styrene block copolymer is used, peel-off intensity will fall and also transparency will get worse remarkably. The processability at the time of an extrusion lamination also gets worse.

[0010]

[Example]Although the example of this invention is shown below, this invention is not limited at all by these examples.

<<Examples 1-6>>, the <<comparative examples 1-6>>

The cover tape of the lamination shown in drawing 1 which produced sealant by the extrusion lamination at 15 micro of thickness to the biaxially oriented polyester film and polyethylene [of 15 micro of thickness / of the laminated article of polyethylene] side of 25 micro of thickness was obtained. The obtained cover tape was heat sealed with the carrier tape made from polystyrol of 8-mm width after the slit to 5.3-mm width, peel-off intensity and visible light transmissivity were measured, and the characterization result was shown in Table 1 and 2. * The upper row of the number of combination shows the weight ratio of the resin contained in sealant, and the lower berth shows a melt flow rate.

Heat-sealing conditions: $160^{**}/1\text{kg}/\text{cm}^2/0.1\text{sec.}$, seal width 0.4 mmx2 peel conditions : 180-degree peel, peel speed 300mm/min.n=3 [0011]

table One fruit ** Example 1 2 3 4 Combination of 56 sealant .Polyethylene 100 100 10040. 20 Ten Polypropylene 100 100. 100 15 20 20 SEPS 900 20 800 15 300 40025 70 30 190 25 25 visible-light transmissivity (%) 87 85 93 95 84 82 peel-off intensity initial value (g/1mm width) -- 66 20 62 15 43 50[0012]

table 2 ratios ** Example 1 2 3 4 Combination of 56 sealant .Polyethylene 100 100 100 40. 20 Ten Polypropylene 100 100100. 15 20 20 SEBS 5 800. 700 100 70 20 20 25. SEPS 2000 525 30 visible-light transmissivity (%) Improper 90 93 62 73 50 peel-off intensity initial value (g/1mm width) -- improper -- 3 2 50 41 16 notes: -- thing [that blocking can be intense and cannot measure the improper display in a table][0013]

[Effect of the Invention]The point that peel-off intensity can be arbitrarily set up in the range of 10 per mm - 120gr if this invention is followed, The problem that the dependency over the seal conditions of the peel-off intensity which is the conventional problem is large, the problem which changes with storage environment temporally, and a transparency problem can be solved, and the stable peel-off intensity can be obtained.

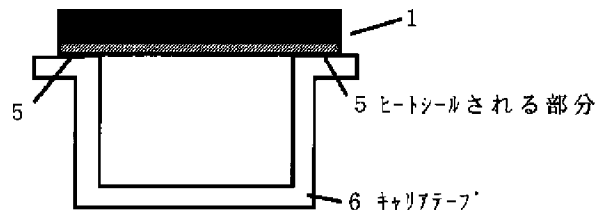
[Translation done.]

Drawing selection Drawing 1 ▼



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